

## Photocatalysis: An Analysis of its Applications and Market Potential



Armed with a strategic overview of the photocatalysis market, energy companies can choose an effective strategy for promoting this beneficial process to prospective customers.

Energy companies can glean the benefits of greater revenue and a loyal customer base by promoting innovative electrotechnologies that help customers operate more effectively and meet business and environmental challenges. One such technology, photocatalysis, disinfects and decontaminates water, wastewater, and gas streams much more rapidly than traditional methods. Even more important, photocatalysis doesn't merely transfer pollutants from one medium to another as conventional methods do, but rather destroys toxic organic solutes. This EPRI study explores the market and economics of photocatalysis, as well as its benefits to energy companies and their customers.

**PRODUCT DESCRIPTION** Photocatalysis uses ultraviolet (UV) light and a metal oxide catalyst to create the hydroxyl radical, an extremely powerful oxidant that destroys organic contaminants in water and gas streams at reaction rates one million to one billion times faster than traditional oxidants, such as ozone. Because the high-

intensity UV light used in the process requires intensive electricity use, promoting photocatalysis offers the obvious benefit of increased revenue to energy companies.

But before developing a business strategy around photocatalysis, companies require in-depth information on the technology, its economics and benefits, and its potential market. A study of the technology by EPRI, described in report TR-111898, is an excellent source of such information.


Based on a literature search and consultations with experts and vendors, the report discusses the applications of photocatalysis, its economics, and the size and future prospects of its market. It also identifies key manufacturers and recent activities to improve the technology. Finally, the report describes potential benefits of photocatalysis to energy companies and their customers, and suggests several options for promoting the process.

**BENEFITS** Energy companies that help customers install photocatalytic applications will see increased revenue, as the process demands significant electricity use. And by demonstrating their ability to provide superior solutions to customers' problems, energy companies can gain in more subtle ways. Notably, photocatalysis successfully exploits electricity's controllability, flexibility, and reliability to speed and enhance the environmental profile of water and gas decontamination. A satisfied customer will not only tend to not only return to the energy company for help with other problems, but also express satisfaction to peers in the industry. In both cases, the energy company wins.

**AVAILABILITY** Eligible EPRI members can obtain technical report TR-111898 by ordering on-line via EPRIweb ([www.epri.com](http://www.epri.com)) or by calling the EPRI Distribution Center, 800.313.3774, ext. 2.

**CONTACT INFORMATION** For more information, contact the  
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